An investigation of alignment of time-to-ship offerings and consumer value in ecommerce

UNDERGRADUATE RESEARCH THESIS

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Abstract

Ecommerce businesses are racing to offer competitive delivery times to meet consumer demand under the assumption that shorter delivery time is better for consumers. The fundamental question of this study is whether consumers are receiving ecommerce items when they most value them. The studies of Chou (2014) have confirmed, in agreement with Zeithaml et al. (1996), Ruyter et al. (1998), Wong and Sohal (2003), and Aydin and Özer (2005), that service quality positively influences customer loyalty. This past research has further shown that customers prefer home-delivery options, which increase likelihood for repeated consumption, with the range of service offerings ranked as the most important factor in service quality. This study aims to expand upon previous findings by finding the degree to which customer planning horizons and expectations align with time-to-ship offerings, and how this impacts overall satisfaction. To assess consumer value, participants completed an online survey that distinguishes between routine and time-critical purchases in order to define their shopping intents. Participants then answered questions related to their satisfaction levels given specific planned, expected, and actual times-to-ship under each purchasing scenario. This research team hypothesizes that routine online purchases are made with a planning horizon sooner than their actual intended use, and thus are being delivered before consumers most value them. Additionally, it predicts that time-sensitive items are most commonly purchased later than the planning horizon related to actual intended use, and thus are delivered either at or later than customers most value them. The practical use of this comes in the value online retailers can derive from a more accurate understanding of consumer value of the time-to-ship. These results might provide online retailers that sell both routine and time-sensitive purchases the basis on which to differentiate shipping options between the two categories.

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Introduction and Stakeholder Analysis

The past decade has seen substantial increases in the quantity and frequency of direct-to-consumer parcel shipments due in large part to the rising popularity of ecommerce. The increased convenience and availability of online retailers have drastically changed the competitive landscape in the consumer goods industry. Spending behaviors have gone from shopping sprees at local malls or brick-and-mortar retailers to individual purchases sporadically made from the convenience of one's own home (Subramaniam, 2017). Perhaps the most apparent example of this convenience offering is online consumer goods giant Amazon. Amazon offers consumers the opportunity to buy any variety of items, from shoes to dish soap to laptops, entirely online, and ships directly to the consumers' preferred addresses. Amidst Amazon's historic rise, traditional retailers have felt the pressures to expand offerings to compete with Amazon's level of convenience in the consumer experience. Foremost among the drivers of Amazon's success has been its expedited shipping opportunities. Amazon's membership service, Amazon Prime, includes a two-day shipping guarantee. This promises to consumers that their orders, for certain pre-selected items, will arrive to their preferred address within two days.

Brick-and-mortar retailers offering the same or similar products as Amazon do not, generally speaking, have the infrastructure to offer such expedited guarantees. Those that do, tend to offer it not as a standard but as a premium service, for which consumers must pay an additional express shipping fee. While Amazon is driving up consumer expectations for parcel time-to-deliver, meaning the time between order placement and order delivery, it also removes the costs of expedited shipping from the point of purchase through its Amazon Prime memberships, which further changes consumer expectations. With significant changes in the consumer experience when shopping, it has become relevant for retailers to attempt to gauge the

value that consumers garner from varied shipping offerings, and how those shipping offerings affect customer behavior. This creates an environment wherein retailers competing in the ecommerce space with Amazon and others, such as Walmart with its new two-day shipping guarantee, stand to gain substantial valuable insight from garnering a better understanding of the value consumers perceive from delivering goods early, on-time, or late, and what it means to the consumer when a good is delivered "on-time."

In accordance with the findings of Shankar, Smith, and Rangaswamy (2003), online versus offline points-of-purchase do not affect satisfaction for services, as customers make satisfaction-equivalent choices, on average, regardless of whether the purchase decision was made online or offline. The goal of this paper is to extend this research through an analysis of the effects of parcel time-to-deliver differentiation on customer perceived value of consumer goods, recognizing that, with product features being equal, the primary remaining variable between online retailers then becomes the shipping offerings and costs.

There are several primary stakeholders that stand to benefit from the findings of this research. There are those firms either currently competing in the ecommerce marketplace or considering entering the market which can leverage these findings when making supply chain capability strategic decisions. Consumers similarly stand to benefit with the potential to share in cost savings if findings suggest that companies can lengthen their time to deliver, or if the findings suggest the opposite, consumers stand to benefit by receiving items when they most value possessing them. Finally, parcel delivery services can benefit from these findings by working with ecommerce firms to cater delivery services and capabilities around the specific needs of the consumer.

The approach taken here will include a literature review which provides an overview of the current state of relevant findings elsewhere, an outlay of the initial hypothesis, a thorough review of the proposed methodologies, and an analysis of the findings resulting from data collection.

Objectives and Research Question

The fundamental question of this study is whether consumers are receiving ecommerce items when they most value them. The studies of Chou (2014) have confirmed, in agreement with Zeithaml et al. (1996), Ruyter et al. (1998), Wong and Sohal (2003), and Aydin and Özer (2005), that service quality positively influences customer loyalty. This past research has further shown that customers prefer home-delivery options, which increase likelihood for repeated consumption, with the range of service offerings ranked as the most important factor in service quality.

This study aims to expand upon previous findings by identifying the degree to which customer planning horizons and expectations align with various time-to-deliver offerings, and how this impacts overall satisfaction. The research team hypothesized that routine online purchases are made with a planning horizon sooner than their actual intended use, and thus are being delivered before consumers most value them. For the purposes of this study, planning horizon can be defined as the time between order placement and the time of intended use. The time of intended use can be defined as the point at which the consumer intends to utilize the item after it is in their possession. Finally, time-to-deliver can be defined as the time between order placement and the time when the item arrives to the delivery address.

Additionally, the researchers predicted that time-critical items are most commonly purchased later than the planning horizon related to actual intended use, and thus are delivered either at or later than customers most value them. As such, the practical applications of this study become apparent in the value online retailers can derive from a more accurate understanding of consumer value of the time-to-ship for various types of goods (i.e. routine online purchases versus time-critical online purchases). These results might provide online retailers that sell both routine and

time-sensitive purchases the basis on which to differentiate shipping options between the two categories.

Prior Research and Relevant Literature

Shankar, Venkatesh, Smith, Amy, and Rangaswamy, Arvind. "Customer satisfaction and loyalty in online and offline environments," *International Journal of Research in Marketing,* Vol. 20, Issue 2, 2003, p. 153-175.

Singh, P. and Cheema, A. "Measurement and Analysis of the Overnight Small Package Shipping Environment for Federal Express and United Parcel Service," *Journal of Testing and Evaluation*, Vol. 24, No. 4, 1996, p. 205-211, https://doi.org/10.1520/JTE11442J. ISSN 0090-3973

Singh, S. P, Burgess, Gary J., Singh, Jagjit, and Kremer, Matt. "Measurement and Analysis of the Next-day Air Shipping Environment for Mid-sized and Lightweight Packages for DHL, FedEx and United Parcel Service," *PACKAGING TECHNOLOGY AND SCIENCE*, 2006; 19: 227–235, 10.1002/pts.726.

Bingguang Li, Michael W. Riley, and Chang-Tseh Hsieh. "Assessing customer satisfaction in parcel delivery industry: an empirical study among university customers," *International Journal of Services and Standards,* 1:2, 2004, p. 172-192, http://dx.doi.org/10.1504/IJSS.2004.005695. ISSN 1740-8857

Majed Al-Mashari, (2002) "Electronic commerce: A comparative study of organizational

experiences", Benchmarking: An International Journal, Vol. 9 Issue: 2, pp.182-189, doi: 10.1108/14635770210421845

Given the relative recency of parcel time-to-deliver differentiation capabilities, the current state of knowledge in the area remains largely unexplored. Much of the present findings focus on the customer experience differentiation that occurs via expedited shipping practices. Such findings shed light on risks to be considered when implementing expedited shipping options.

One such risk to be considered is the state of the parcel upon arrival. The state of the package is dependent upon the frequency of shock experiences during transit. Shock experience frequency increases when shipping overnight via Federal Express and United Parcel Service. A package encounters 24 shock events, defined as drops, kicks, and tosses, throughout a one-way trip (Singh, P. & Cheema, A., 1996). Given the importance of the parcel condition upon arrival, these findings will likely play a key role in customers' reorder likelihood and frequency, and, as such, the fragility of particular goods as it relates to the endurance of roughly 24 shock events must be considered in addition to findings related to consumer goods when determining time-to-deliver offerings. Furthermore, current findings show that for two of the main shipping carriers, DHL and FedEx, these shock events prove more extreme for next-day shipping than for two-day shipping. This means that when said packages are dropped in transit, they fall, on average, from greater distances with next-day shipping than with two-day shipping. Interestingly, the opposite is true of UPS (Singh, S., Burgess, G., Singh, J., & Kremer, M., 2006). Thus, particular shipping carriers must also be scrutinized alongside the decisions to offer particular times-to-ship with respect to product durability.

In comparing ecommerce business to brick-and-mortar retailers, the inherent advantages of electric commerce organizations in terms of shipping and logistics become apparent, since these were created with direct-to-consumer shipping in mind (Al-Mashari, M., 2002). With these disadvantages, including increased overhead and variable costs, brick-and-mortar retailers must be especially prudent in determining shipping options so as to remain competitive in terms of price point to maximize surplus in customer perceived value. Contrastingly, however, online versus offline points-of-purchase do not affect satisfaction for services (Shankar, Smith, & Rangaswamy, 2003). Finally, as stated above, it has been found that service quality positively influences loyalty in business to consumer sales, with the most important factor in consumer perception of service quality being the range of service offering. Additionally, studies show that consumers prefer home-delivery options to in-store purchasing, and home-delivery increases likelihood for repeated consumption (Chou, 2014).

With this in mind, brick-and-mortar retailers should look to time-to-deliver differentiation from a cost-based perspective alongside the customer perceived value. In this way, brick-and-mortar retailers will be able to identify an optimal time-to-deliver option and price that creates the largest surplus in customer perceived value over firm shipping costs. This study will extend the implications of existing research to identify these customer-surplus maximizing time-to-ship options for consumer goods.

Methodology

Strategy

In order to achieve the objectives of this research project, a survey was designed and distributed to obtain a fully tailored dataset. A survey made using Qualtrics was chosen as the method of data collection due to the limited availability of data on this emerging area of research, as well as to more fully gather information highly specific to this project. The survey was distributed through online channels with the goal of garnering a more diverse set of respondents than an in-person distribution might lend itself towards. It was ultimately distributed through LinkedIn, Facebook, and an email campaign.

Data Collection

The survey begins by establishing two varied buying scenarios. The first, routine purchases, is defined as being made with sufficient time from buying to ship free under normal circumstances. The second, time-critical purchases, is defined as having shorter-than-normal planning horizons that will reasonably require additional cost to ship in order to arrive in time for its intended use. These buying scenarios were established in order to capture a mutually exclusive but collectively exhaustive grouping of purchasing behavior that allows for varied context.

Participants then answered a variety of questions related to their timeline of intended use, their expectations of arrival after order, and their actual experience of arrival after time of order. Participants were then asked a variety of questions rating satisfaction levels given actual time to receive after order placement was earlier, later, or exactly meeting expectations under both

purchasing scenarios. Finally, respondents reported their online shipping category preferences to determine their universe of online products. The exact survey can be seen in the appendix as Figure 1.

Results and Findings

Sample Analysis

With a sample size of 48 respondents garnered from completed responses of the Qualtrics survey distributed on LinkedIn, Facebook, and via email, the sampling skewed towards the 18-25 age range, representing 49% of respondents (Figure 2). The next largest represented age range was 51-65, at 19%, 35-50 at 16%, 65+ at 11%, and last was the 26-35 age range at 5%. While admittedly the demographics of this sampling are not indicative of the true population proportions based on age breakdown, it remains valid to include all age ranges in order to further analyze respondent data, but the caveat must be raised nonetheless that this sampling may not represent a true age breakdown of the population of US online shoppers as a whole. The respondents slightly skewed towards female at 56% of total respondents, but it must be noted here that the identified gender was an optional response with just half of total respondents opting to answer the question (Figure 3).

Results

Several insights can be gleaned from the survey responses. The data shows that, when making routine purchases online, consumers make purchases 5.28 days before intended use, expect to receive the items 3.71 days after ordering, and actually receive the items 3.79 days after the time of order (Figure 4). As expected, the results for time-critical purchases online are similar but on a more truncated timeline, with purchases made 3.59 days before intended use, 2.86 days before expected arrival, and 2.75 actual days to arrive after purchase (Figure 5).

In quantifying the reported satisfaction levels, the scale from Very Dissatisfied to Very Satisfied was assigned a 1-5 value, with 5 being Very Satisfied, meaning greater values indicate

greater satisfaction. For routine purchases made online, the average satisfaction for arrival earlier than expected was 4.38, 4.21 for on-time arrival, and 2.24 for arrival later than expected. Similarly, for time-critical purchases made online early arrival garnered 4.42 satisfaction levels, 4.16 for on-time, and 2.00 for late arrival (Figure 6).

Using the responses for the final question, which asks which shopping categories each respondent buys online more often than in person, the respondent universe of online shopping can be established. The most commonly selected shopping categories are as follows: Apps & Games (10%), Home & Kitchen (9%), Cell Phones & Accessories (9%), Books (8%), Other Electronics (8%), Personal Care (7%), and Office Products (7%) (Figure 7). In the above, the percentage is taken as a fraction of total shopping category selections, where respondents selected any number of shopping categories.

Discussion of Findings

Further analysis of the data garners meaningful conclusions with regard to testing the initial hypothesis, as well as in steering the direction of potential future research which will be discussed further in the later section, Recommendations for Future Research.

Routine Purchases

Given the data reported in the above, several conclusions can be made with statistical significance. A timeline can be established for both routine and time-critical purchases based on the planning horizon, expectation of arrival, and actual arrival. Specifically, a comparison of the time between anticipated use and the time of purchase with the actual time of arrival yields results which indicate whether items arrive before use.

Looking at routine online purchases, the average time between order and anticipated use within a standard 95% confidence interval is between 4.41 and 6.15 days. The actual reported time between order placement and arrival, again within a 95% confidence interval, is between 3.23 and 4.35 days (Figure 6). From this, it can be then concluded that within a 95% confidence interval, consumer behavior involves ordering on a timeline such that the items will arrive before actual intended use rather than at the time of intended use. This conclusion can be made because the actual arrival time is sooner than the time of intended use, by somewhere between 0.06 and 2.92 days. Thus, it can be established that routine online purchases arrive earlier than intended use. The practical implications of this rely on whether consumers receive added value through this early arrival, and this can be done using the satisfaction survey results.

In accordance with the satisfaction results from Figure 6, the routine purchasing satisfaction levels for early arrival are, within a 95% confidence interval, between 4.13 and 4.62 on the 1-5 satisfaction level rating. Satisfaction for on-time arrival within a 95% confidence

interval lies between 3.92 and 4.50. Finally, satisfaction for late arrival falls between 1.88 and 2.61. The significance of these findings is that, for routine purchases online, there is not a statistically significant difference in reported consumer satisfaction between when items arrive earlier than intended use and when they arrive on-time, or exactly at the time of intended use. There is simply a drastic drop off in satisfaction reported in the event that the items arrive after the time of intended use, as one might anticipate. Given these findings, this suggests that rather than investing in supply chain capabilities in order for goods to arrive as early as possible, resources can be saved by investing only those necessary to avoid late arrival. In the current ecommerce environment, consumers are receiving routinely purchased items before they intend to use them, and report no additional satisfaction deriving from this early arrival. As such, there is reason to claim that ecommerce companies that sell commonly purchased routine items have over-committed resources to deliver as fast as possible, when the consumer may have best benefited from the cost savings of slower delivery rather than the early arrival of goods. As such, firms competing in the ecommerce space that sell items typically considered routine purchases that are facing the decision of supply chain capability investments should consider opting for slower delivery times than the industry-standard options in the event that slower shipping options coincide with cost savings that can then benefit the firm and/or the consumer. Since cost savings can be realized through slower delivering times, the goal of these supply chains should be to deliver as close to actual time of intended use as possible without delivering late, so the firms should then look at product category- or product-level specified timelines of typical intended use from time of order, which may vary across categories, as will be discussed below in the Future Research section.

Time-Critical Purchases

While the data supports the notion that routine purchases arrive earlier than intended use without contributing to greater satisfaction for consumers, the findings are not the same for time-critical purchases. The satisfaction results are consistent, however. On-time arrival garnered a satisfaction score of between 3.88 and 4.45 under a 95% confidence interval, while early arrival fell between 4.17 and 4.66, thus showing no statistically significant difference between the two. Once again, late arrival dropped satisfaction scores drastically to between 1.66 and 2.34 (Figure 7). It remains true under both purchasing scenarios that consumers do not report increased satisfaction when items arrive earlier than intended use as compared to on-time delivery. The only relevant delivery scenario on altering satisfaction is late arrival, which in both cases cuts satisfaction levels nearly in half.

Where the findings diverge between the two purchasing scenarios is in the planning horizon as it relates to actual delivery time. The average time-critical purchase is made between 2.85 and 4.34 days before intended use within a 95% confidence interval. Actual reported time to deliver, within the same 95% confidence interval, is between 2.28 and 3.22 days. Given the overlap of these two confidence intervals, it cannot be said that there is a statistically significant difference between the two figures. As such, it can be concluded, then, that time-critical purchases are being delivered in accordance with what consumers would consider on-time delivery based on when consumers make these purchases. This finding, while differing from routine purchases, can likely be explained because of the very difference between each purchasing scenario as they have been defined for respondents. As time-critical has been defined, buyers in this scenario already have a reduced timeline for use, and can expect to potentially incur additional fees for rushed shipping. As such, it logically follows that this reduced timeline

has less room for early arrival. Given these findings, ecommerce companies that offer expedited shipping options or whose products are commonly purchased by consumers in time-critical purchasing situations should continue to strive to meet current industry standards for expedited shipping in order to reduce the risk of late arrival, which plummets customer satisfaction.

Conclusion

With regard to the objective of this study, the initial hypotheses have been confirmed. As predicted, routine purchases made online arrive sooner than intended use based on the purchasing behavior of consumers. This early arrival, while coming at great cost to ecommerce companies, provides no increase in consumer satisfaction. As such, firms choosing to allocate resources that sell items online that are common routinely purchased items should consider lengthening standard shipping times in favor of lower cost options, where these cost savings can benefit the firm and/or the end consumer.

For time-critical purchases, however, current industry standards seem to be on par with consumer expectations in that actual arrival is not significantly differing from the time of intended use, confirming the hypothesis that these items are delivered at the time when consumers intend to use them. Online retailers whose goods are commonly purchased in time-critical scenarios can leverage this information to justify maintained investments in current supply chain capabilities so as to avoid late arrival, which exposes the firm to greatly reduced customer satisfaction.

For the purposes of identifying those firms which stand to most benefit from these findings, this research can serve as a foundation on which to build future, more firm- and industry-specific studies.

Recommendations for Future Research

Based on the findings from this study, future research can be conducted delving further into determining the specific window of value at the product-category level. In determining the specific times-to-deliver for particular product categories, retailers could further leverage this area of research to inform strategic decisions related to supply chain capabilities. Specifically, firms could determine the maximum time-to-ship around which they could shape their supply chain in order for customers to receive their goods at the time of intended use rather than investing resources to deliver goods before consumers intend to use them.

While the scope of this study did not lend itself to recording enough varied responses to provide statistical significance to shopping category specific findings, the data collected does seem to suggest that the difference between the time between order placement and intended use and the time of arrival varies across product category. Particular ecommerce segments such as Toys & Games, Luggage & Travel, Other Electronics, Computers, Cell Phones & Accessories, Books, and Automotive Parts & Accessories deliver goods 2 or more days ahead of intended use in routine purchases based on preliminary data (Figure 8). With these industries potentially having the most room for shipping time extension, and thus the greatest potential cost reduction, a study building upon these findings designed around garnering statistically significant product-category level results would solidify the retailers that can be most impacted by this area of research.

Acknowledgements

Foremost, I would like to thank my content advisor, Professor Jim Hendrickson for his ongoing support and guidance throughout this journey. His expertise in the field has greatly impacted the strategy and direction of this project. Additionally, I would like to thank my Honors Contract advisor, Dr. Roger Bailey, for his support, patience, and motivation over these past few years crafting this thesis.

Appendices

Figure 1: Copy of Survey

Data Collection Survey - Are consumers receiving goods before they value them?

Start of Block: Consent Form

Consent Form Title: An investigation of alignment of time-to-ship offerings and consumer value.

Thank you for your participation in this research study. The purpose of this study is to identify areas in which eCommerce direct-to-consumer entities offer shipping options that are misaligned with consumer expectations required for satisfaction.

You are invited to participate in a web-based online survey on consumer time-to-ship satisfaction. This is a research project being conducted by Anthony Rangel, a student at The Ohio State University. It should take approximately 10 minutes to complete. You may choose to leave the study at any time.

Your participation in this survey is voluntary. Refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled and subjects may discontinue participation at any time without penalty or loss of benefits. Participants may skip any question(s) they do not wish to answer.

You will not benefit directly from participating in the study, and you will not be paid for participating in this research study. However, your responses may help us learn more about this critical area of research.

There are no foreseeable risks involved in participating in this study other than those encountered in day-to-day life. Efforts will be made to keep your study--related information confidential. We will work to make sure that no one sees your survey responses without approval. But, because we are using the Internet, there is a chance that someone could access your online responses without permission. In some cases, this information could be used to identify you.

For questions, concerns, or complaints about the study, please contact Anthony Rangel at Rangel.15@osu.edu. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

End of Block: Consent Form

Start of Block: Routine Vs. Time-Critical Purchase Comprehension Check

Q1 For the purposes of this study, routine purchases can be defined as purchases made with sufficient time from buying to ship free.

TIme-critical purchases can be defined as having shorter-than-normal planning horizons that will require additional cost to ship in order to receive in time to be used.

End of Block: Routine Vs. Time-Critical Purchase Comprehension Check

Start of Block: Frequency of online ordering

Q21 What percent of your total purchases are made online? (answer in the form of "X%")

_____

Q13 How many ROUTINE purchases do you make during a given month? (Online)

▼ 1 (1) ... 10+ (10)

Q14 How many TIME-CRITICAL purchases do you make during a given month? (Online)

▼ 1 (1) ... 10+ (10)

End of Block: Frequency of online ordering

Start of Block: SATISFACTION PROFILE

Q15 Please rate the impact each of the following items has on your overall satisfaction when purchasing.

	Very Unimportant (1)	Somewhat Unimportant (2)	Neither Important nor Unimportant (3)	Somewhat Important (4)	Very Important (5)
Convenience (1)	○	○	○	○	○
Ease of Ordering/Product Availability (2)	○	○	○	○	○
Assistance (When Needed) (3)	○	○	○	○	○
Time to Receive/Ability to Take Home (4)	○	○	○	○	○

Q24 Please rate the impact each of the following items has on your overall satisfaction when purchasing IN STORE.

	Very Unimportant (1)	Somewhat Unimportant (2)	Neither Important nor Unimportant (3)	Somewhat Important (4)	Very Important (5)
Convenience (1)	○	○	○	○	○
Ease of Ordering/Product Availability (2)	○	○	○	○	○
Assistance (When Needed) (3)	○	○	○	○	○
Time to Receive/Ability to Take Home (4)	○	○	○	○	○

Q25 Please rate the impact each of the following items has on your overall satisfaction when purchasing ONLINE.

	Very Unimportant (1)	Somewhat Unimportant (2)	Neither Important nor Unimportant (3)	Somewhat Important (4)	Very Important (5)
Convenience (1)	○	○	○	○	○
Ease of Ordering/Product Availability (2)	○	○	○	○	○
Assistance (When Needed) (3)	○	○	○	○	○
Time to Receive/Ability to Take Home (4)	○	○	○	○	○

Q18 Please rate your satisfaction when comparing actual shipping time to expected shipping time for ROUTINE purchases you've made online.

	Very Dissatisfied (1)	Somewhat Dissatisfied (2)	Neither Satisfied nor Dissatisfied (3)	Somewhat Satisfied (4)	Very Satisfied (5)
Actual shipping time exactly meets your expected shipping time (1)	○	○	○	○	○
Actual shipping time is less than your expected shipping time (2)	○	○	○	○	○
Actual shipping time is more than your expected shipping time (3)	○	○	○	○	○

Q27 Please rate your satisfaction when comparing actual shipping time to expected shipping time for TIME-CRITICAL purchases you've made online.

	Very Dissatisfied (1)	Somewhat Dissatisfied (2)	Neither Satisfied nor Dissatisfied (3)	Somewhat Satisfied (4)	Very Satisfied (5)
Actual shipping time exactly meets your expected shipping time (1)	○	○	○	○	○
Actual shipping time is less than your expected shipping time (2)	○	○	○	○	○
Actual shipping time is more than your expected shipping time (3)	○	○	○	○	○

End of Block: SATISFACTION PROFILE

Start of Block: For Routine Purchases

Q5 Questions in this section will refer to your behavior when making ROUTINE PURCHASES.

Recall that for the purposes of this study, routine purchases can be defined as purchases made with sufficient time from buying to ship free.

Q6 When making routine purchases, how many days in advance do you purchase before you anticipate using the item(s)?

▼ 1 (1) ... 10+ (10)

Q7 When making routine purchases, how many days do you anticipate waiting before the item(s) arrive? (Assume shipping is free.)

▼ 1 (1) ... 10+ (10)

Q8 When making routine purchases, how many ACTUAL days does it typically take to receive the item(s)?

▼ 1 (1) ... 10+ (10)

End of Block: For Routine Purchases

Start of Block: For Time-Critical Purchases

Q9 Questions in this section will refer to your behavior when making TIME-CRITICAL PURCHASES online.

Recall that tIme-critical purchases can be defined as having shorter-than-normal planning horizons that will require additional cost to ship in order to receive in time to be used.

Q10 When making time-critical purchases online, how many days in advance do you purchase before you anticipate using the item(s)?

▼ 1 (1) ... 10+ (10)

Q11 When making time-critical purchases online, how many days do you anticipate waiting before the item(s) arrive? (Assume shipping is free.)

▼ 1 (1) ... 10+ (10)

Q12 When making time-critical purchases online, how many ACTUAL days does it typically take to receive the item(s)?

▼ 1 (1) ... 10+ (10)

End of Block: For Time-Critical Purchases

Start of Block: Which of the following items do you tend to buy online more than in store?

Q28 Which of the following item categories do you tend to buy online more than in store?

- [ ] Apps & Games (1)
- [ ] Arts, Crafts, & Sewing (2)
- [ ] Automotive Parts & Accessories (3)
- [ ] Baby Products (4)
- [ ] Beauty & Personal Care (5)
- [ ] Books (6)
- [ ] CDs & Vinyls (7)
- [ ] Cell Phones & Accessories (8)
- [ ] Clothing, Shoes, & Jewelry (9)
- [ ] Collectibles & Fine Art (10)
- [ ] Computers (11)
- [ ] Other Electronics (12)
- [ ] Garden & Outdoor (13)
- [ ] Gift Cards (14)
- [ ] Grocery & Gourmet Food (15)
- [ ] Home & Kitchen (16)
- [ ] Luggage & Travel (17)
- [ ] Luxury Beauty (18)
- [ ] Musical Instruments (19)

- [ ] Office Products (20)
- [ ] Pet Supplies (21)
- [ ] Sports & Outdoors (22)
- [ ] Tools & Home Improvement (23)
- [ ] Toys & Games (24)
- [ ] Vehicles (25)
- [ ] Prepared Foods (e.g. from restaurants) (26)

End of Block: Which of the following items do you tend to buy online more than in store?

Start of Block: Demographics

Q29 Please select the age group that best describes you.

- ○ <18 (1)
- ○ 18-25 (2)
- ○ 26-35 (3)
- ○ 36-50 (4)
- ○ 51-65 (5)
- ○ 65+ (6)

Q30 Please select the gender that best describes you.

- ○ Male (1)
- ○ Female (2)
- ○ Other (3)
- ○ Prefer not to answer (4)

End of Block: Demographics

Figure 2: Survey Respondent Breakdown by Age

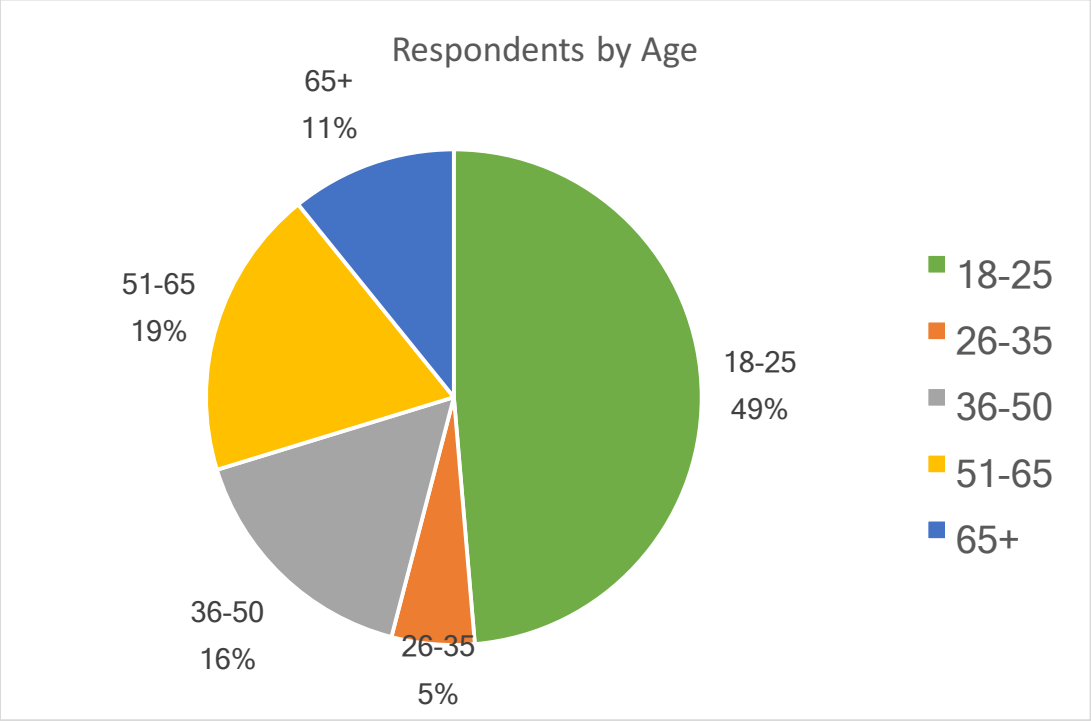


Figure 3: Survey Respondents by Gender

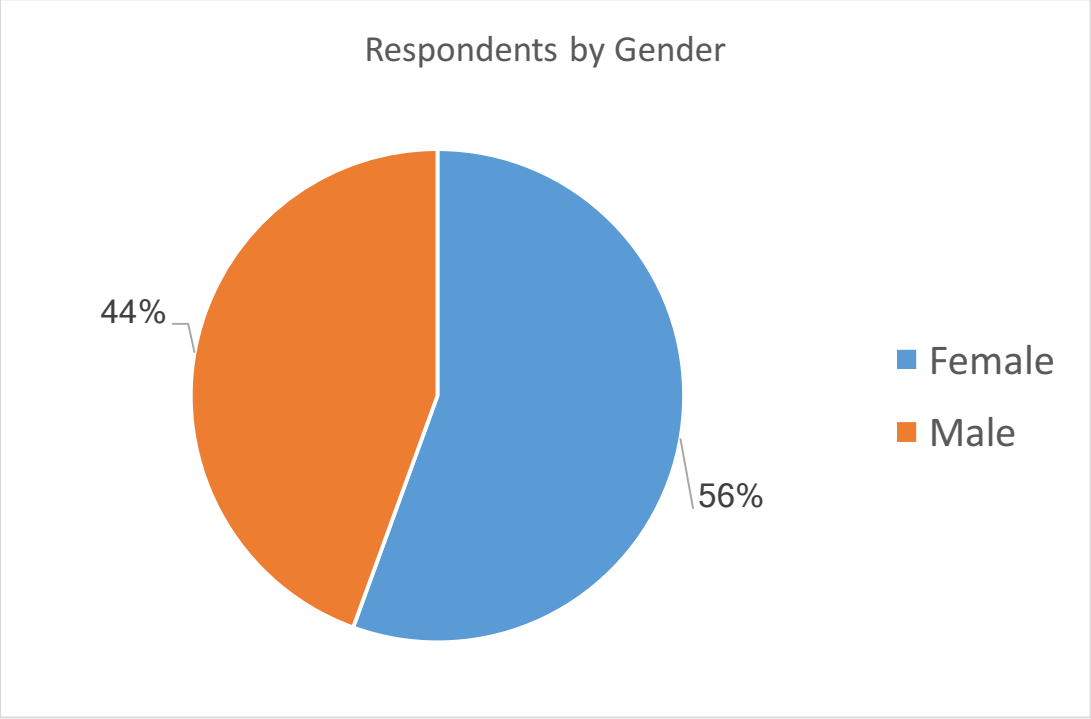


Figure 4: Routine Purchasing Timeline

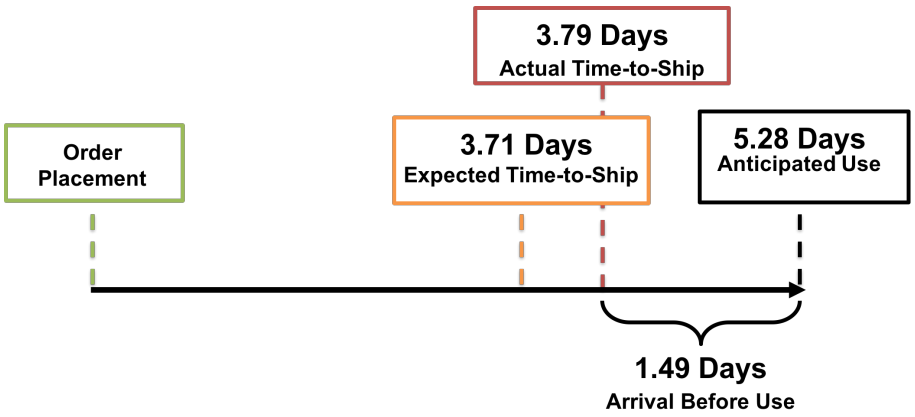
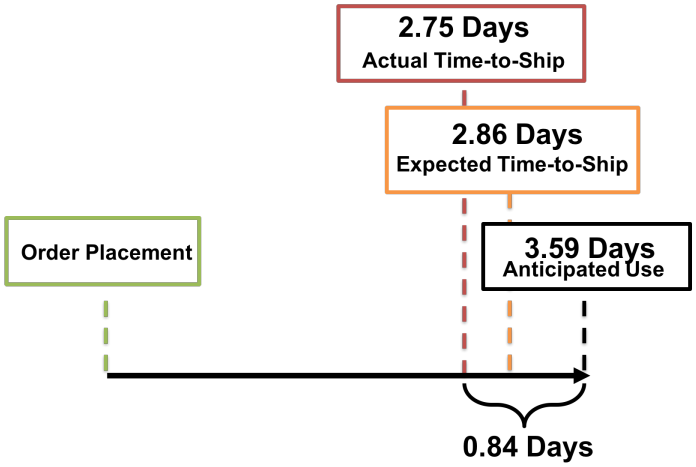


Figure 5: Time-Critical Purchasing Timeline



Figures 6: Satisfaction Ratings and Arrival Status

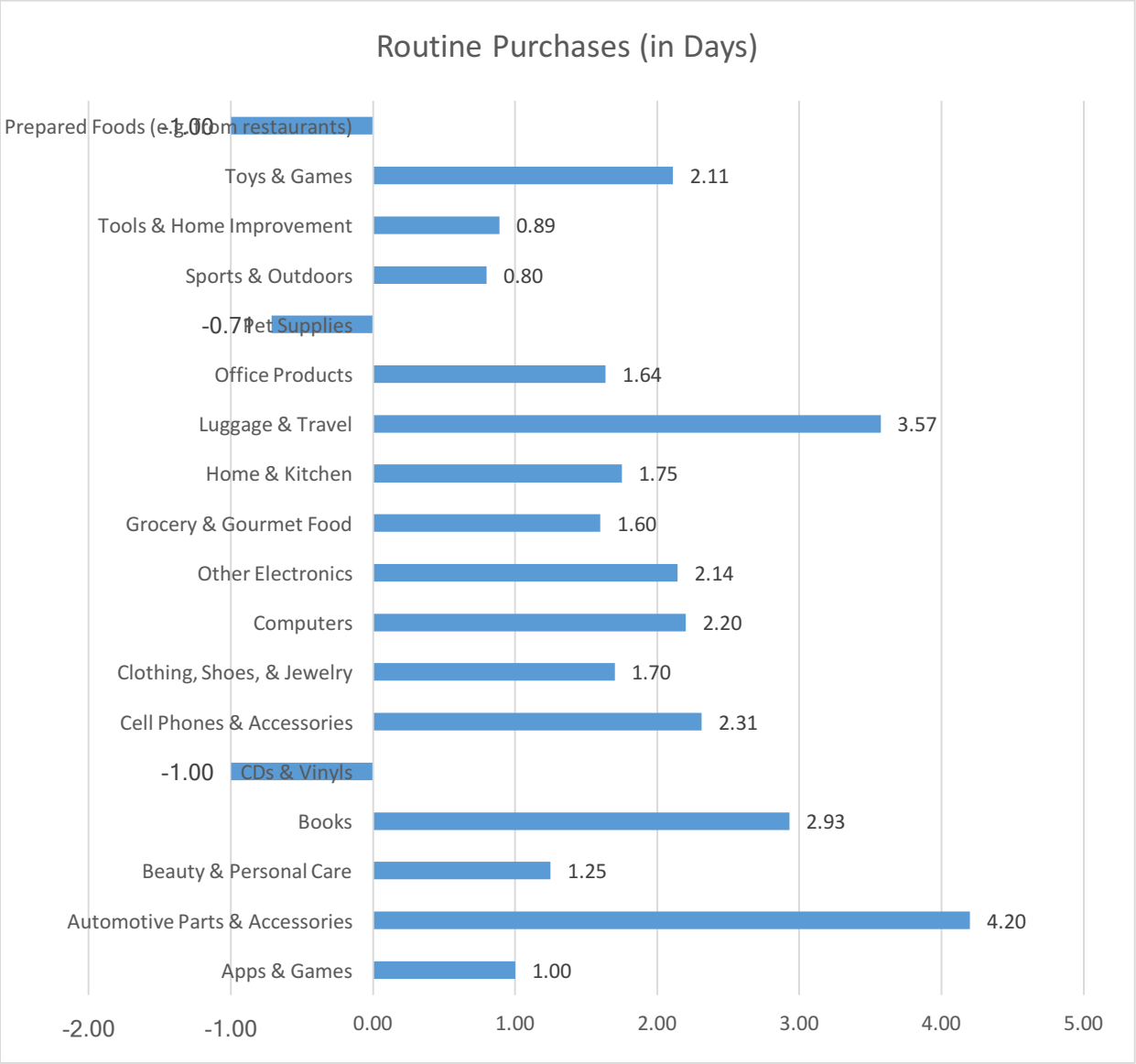
Arrival Status	Routine Purchases	Time-Critical Purchases
Early	4.38	4.42
On Time	4.21	4.16
Late	2.24	2.00

Figure 7: Frequency of Shopping Categories

Shopping Category	Frequency	Rank
Apps & Games	10.06%	1
Cell Phones & Accessories	8.94%	2
Home & Kitchen	8.94%	2
Books	8.38%	4
Other Electronics	8.38%	4
Office Products	6.70%	6
Beauty & Personal Care	6.70%	6
Clothing, Shoes, & Jewelry	5.59%	8
Tools & Home Improvement	5.03%	9
Toys & Games	5.03%	9
Luggage & Travel	3.91%	11
Pet Supplies	3.91%	11
Automotive Parts & Accessories	2.79%	13
Sports & Outdoors	2.79%	13
Grocery & Gourmet Food	2.79%	13
Computers	2.79%	13
CDs & Vinyls	1.68%	17
Prepared Foods (e.g. from restaurants)	1.68%	17
Collectibles & Fine Art	1.12%	19
Garden & Outdoor	1.12%	19
Arts, Crafts, & Sewing	0.56%	21
Luxury Beauty	0.56%	21
Vehicles	0.56%	21
Baby Products	0.00%	24
Gift Cards	0.00%	24

Musical Instruments	0.00%	24

Figure 8: Routine Purchasing Timeline by Product Category (Time Between Arrival and Intended Use)



The above graph displays the average amount of time between the actual arrival and intended use. These times are segmented into product categories based on respondent preferences for purchasing certain categories online rather than in store. Greater positive values here indicate early arrival by the amount displayed.

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